

“Putting it all Together”

Leadership, Systems, Metrics, and Emerging Issues

Presented by:

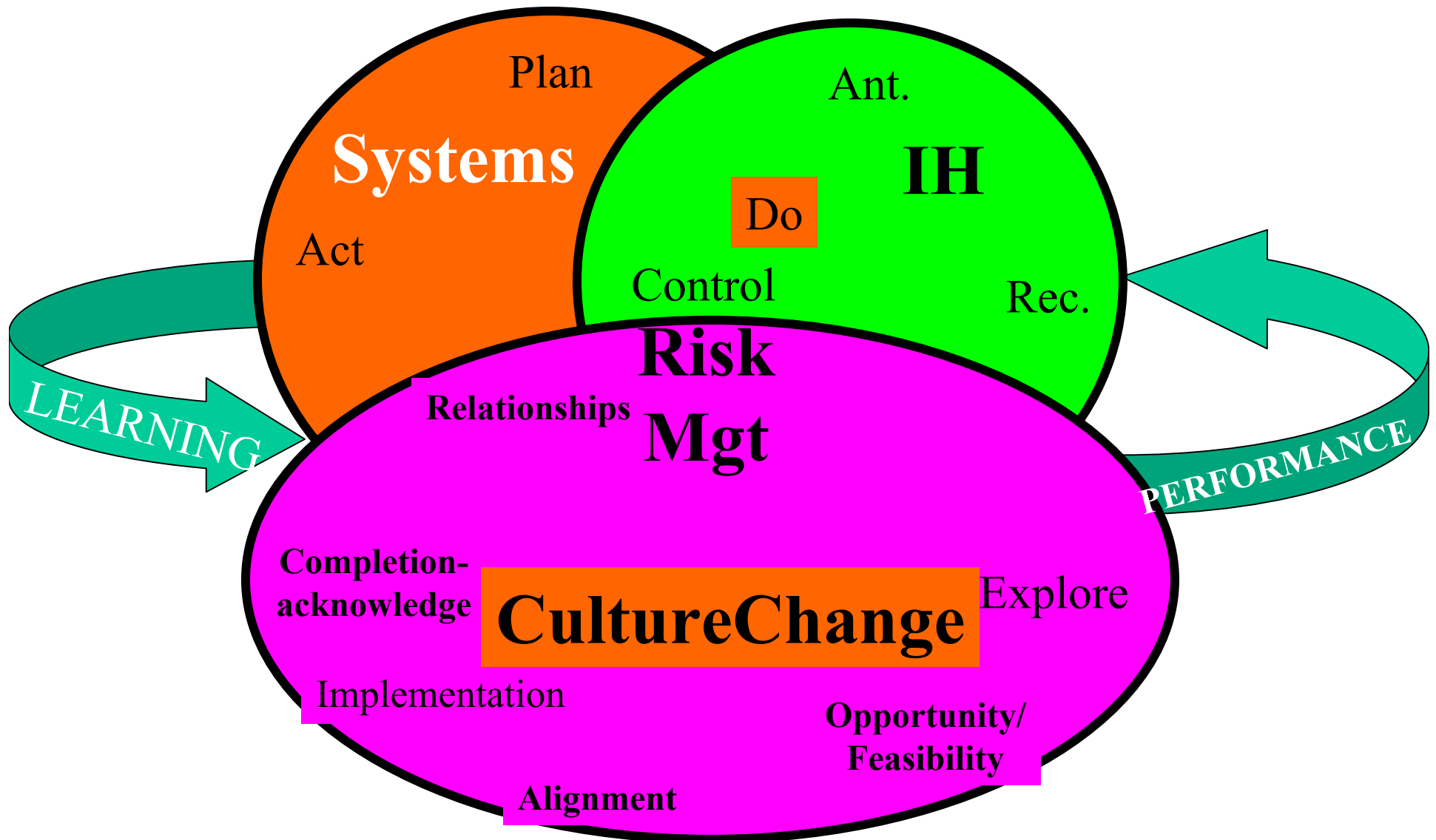
***3rd Triennial EHS Management Symposium
AIHCE 2005, Anaheim, CA***

Presented by:

**Kyle B. Dotson, CIH, CSP, DEE
VP & Corporate Safety Officer
Calpine Corporation**

Systems for **Risk** Management

2002 2nd Triennial EHS Management Symposium “Connecting the Dots!” L Birkner, CIH.



Who would have ever thought the key drivers would change in only three years.....

John Howard

Current Key Drivers of EHS =

Health Care Costs: Merging of at work and after work health.
Health Protection = Health Promotion.

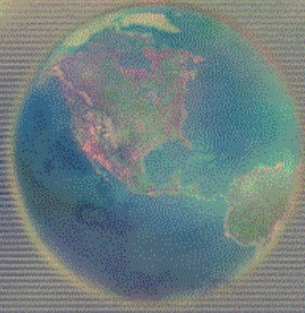
Globalization: US no longer setting THE Policy. International consensus is setting the policy.

ISO Standard on “**Social Responsibility**”

Kyle Dotson

Sarbanes Oxley, ENRON, Elliott Spitzer, GM cars, GE ecomagination new report, Duke global warming, BP, etc

Health Care cost likely is THE future metric (but not current one)



Role of Occupational Safety and Health in Health and Productivity Management

- Can OSH assist in creating a work environment that maximizes employee productivity?
 - ~ Prevent injuries and illnesses
 - ~ Adapt work environments to best suit employees with chronic conditions including work-related conditions as well as non-occupationally related conditions

Sean Sullivan

CEOs leading the charge - The “new” focus on Corporate Social Responsibility by public company Board of Directors (transparency)

How do corporate values impact business risk?

A case study in doing the right thing

Nancy Orr



EHS Metrics for CEOs (post Sarbanes Oxley) now have a need to know
(so there will now have to be a system to produce scorecard of all issues)



Natural Infrastructure Capability Status

Component	Measure	Capability Status						
		RD3	RD2	RD1	RR	RO1	RO2	RO3
Air	1							
	2							
	3							
	4							
	5							
Land	1							
	2							
	3							
	4							
Water	1							
	2							
	3							
	4							

Leading Mgmt Systems - Now that you have Mgmt Support (even if you don't know it and even if your lower management doesn't know it yet)

2

Leadership Paradoxes

- You have to do it yourself, but you can't do it alone.
- The more control you give up, the more you will be given.
- Leaders can't motivate people, they have to motivate themselves.
- You can't learn without trying and failing.
Learn from mistakes, celebrate successes.
- Seek first to understand, then to be understood.
- You can't know the future, but you have to anticipate it.

Aldo Morell

5/19/2005

EHS is the right thing to do. If you don't lead the system development, then someone with less understanding will. Plenty of corp examples...



Principles of Officership



- **Serve society**

- We have a moral obligation in our commission. We are an agent of society and we are held accountable for our actions and the actions of our subordinates.

- **Always do your duty**

- *Subordinate your personal interests*

- **Determine Standards of Professional Competence**

- Based on our expertise we must set, adhere to, make known and enforce standards of our profession



The point was and is, that EMS and OHSAS certification efforts that focus ONLY on the “process” and not intent “misses the point”.

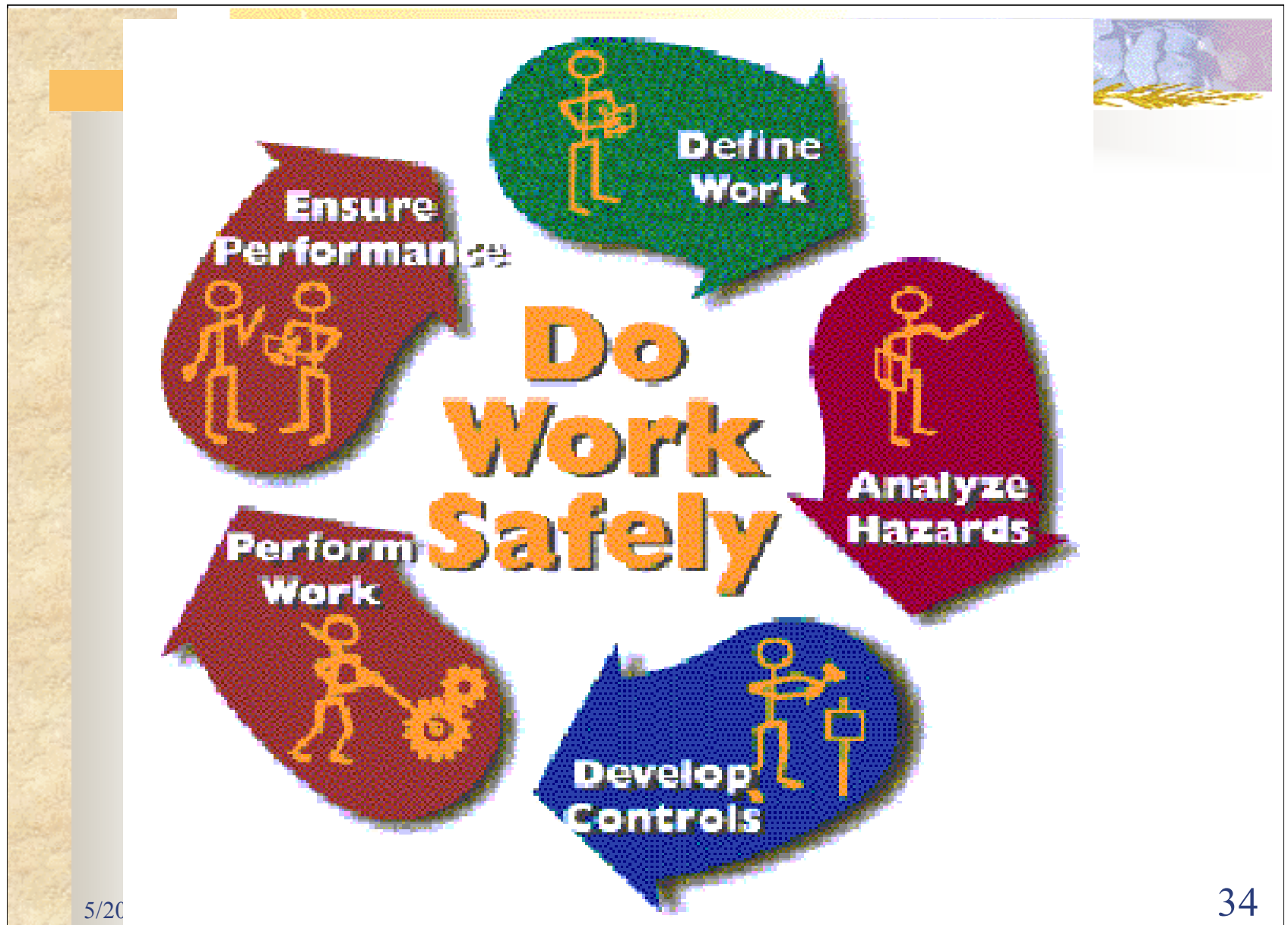
Multiple studies show little correlation between EMS and performance ... and for OHS MS ...



- Research conducted by Loma Linda University (Calif.) on OOHSMs; published in AIHA Journal (Dec. 2003)
- “Findings presented here raise potentially disturbing questions regarding the reliability of OHS management programme and system audit findings, particularly in light of the emphasis industry has placed on certifications and status achieved secondary to “passing” an audit.”

Brian Kraus

But that doesn't mean Management Systems are bad;
are in fact crucial to getting things done in large orgs.



You don't have to have a system. Many don't... with lesser results...

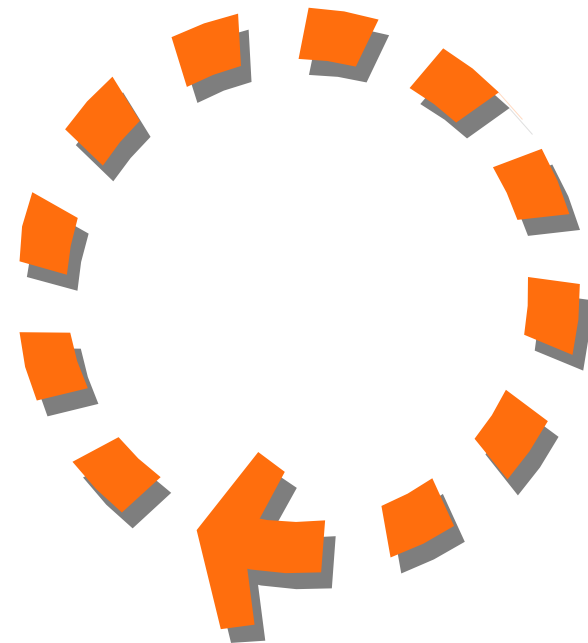
Programs vs. System

■ Programs (reactive)



■ System (proactive)

Out of chaos, order...



Ross Grayson

5/20/2005

UC ISEM for 2005 AIHCE

Here is the big picture. The optimum. We all have pieces.



Its about Structure. Process. Measurement. And Making it Happen

Management Systems

- *A system to establish policy and objectives and to achieve those objectives using ...*
 - *An **organizational structure** with roles, responsibilities, authorities*
 - ***Systematic processes** and associated resources*
 - ***Measurement & evaluation methodology** to assess performance*
 - ***A review process** to ensure problems are corrected & opportunities recognized and implemented when justified*

Reference: ISO Guide 72:2000 Guidelines for the justification and development of management system standards

And there are many system tools for hazard analysis. Over analysis is possible. Don't lose focus on the outcome.

Randy Roig

Lean Six Sigma DMAIC Improvement Process Road Map



Activities

- Review Project Charter
- Validate Problem Statement and Goals
- Validate Voice of the Customer & Voice of the Business
- Validate Financial Benefits
- Validate High-Level Value Stream Map and Scope
- Create Communication Plan
- Select and Launch Team
- Develop Project Schedule
- Complete Define Gate

- Value Stream Map for Deeper Understanding and Focus
- Identify Key Input, Process and Output Metrics
- Develop Operational Definitions
- Develop Data Collection Plan
- Validate Measurement System
- Collect Baseline Data
- Determine Process Capability
- Complete Measure Gate

- Identify Potential Root Causes
- Reduce List of Potential Root Causes
- Confirm Root Cause to Output Relationship
- Estimate Impact of Root Causes on Key Outputs
- Prioritize Root Causes
- Complete Analyze Gate

- Develop Potential Solutions
- Evaluate, Select, and Optimize Best Solutions
- Develop 'To-Be' Value Stream Map(s)
- Develop and Implement Pilot Solution
- Confirm Attainment of Project Goals
- Develop Full Scale Implementation Plan
- Complete Improve Gate

- Implement Mistake Proofing
- Develop SOP's, Training Plan & Process Controls
- Implement Solution and Ongoing Process Measurements
- Identify Project Replication Opportunities
- Complete Control Gate
- Transition Project to Process Owner

Tools

- Project Charter
- Voice of the Customer and Kano Analysis
- SIPOC Map
- Project Valuation / ROIC Analysis Tools
- RACI and Quad Charts
- Stakeholder Analysis
- Communication Plan
- Effective Meeting Tools
- Inquiry and Advocacy Skills
- Time Lines, Milestones, and Gantt Charting
- Pareto Analysis
- Belbin Analysis

- Value Stream Mapping
- Value of Speed (Process Cycle Efficiency / Little's Law)
- Operational Definitions
- Data Collection Plan
- Statistical Sampling
- Measurement System Analysis (MSA)
- Gage R&R
- Kappa Studies
- Control Charts
- Histograms
- Normality Test
- Process Capability Analysis

- Process Constraint ID and Takt Time Analysis
- Cause & Effect Analysis
- FMEA
- Hypothesis Tests/Conf. Intervals
- Simple & Multiple Regression
- ANOVA
- Components of Variation
- Conquering Product and Process Complexity
- Queuing Theory

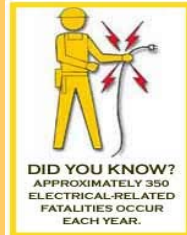
- Kaizen, 5S, NVA Analysis, Generic Pull Systems, Four Step Rapid Setup Method
- Replenishment Pull/Kanban
- Stocking Strategy
- Process Flow Improvement
- Process Balancing
- Analytical Batch Sizing
- Total Productive Maintenance
- Design of Experiments (DOE)
- Solution Selection Matrix
- Piloting and Simulation

- Mistake-Proofing/ Zero Defects
- Standard Operating Procedures (SOP's)
- Process Control Plans
- Visual Process Control Tools
- Statistical Process Controls (SPC)
- Solution Replication
- Project Transition Model
- Team Feedback Session

Identify and Implement Quick Improvements with Kaizen

There are many issues you can put in a system to avoid injury and illness. ANSI Z10 a good model for considering what to put in.

Avoiding Accidents



Different approaches to avoid accidents

- Enforcement approach--establishing rules and penalties;
- Engineering approach--using safer technologies and machinery;
- Analytical approach—safer work methods;
- Behavioral approach

With a system, you can have lots of metrics. Choose wisely.



Natural Infrastructure Capability Measures

U.S. AIR FORCE

Airspace	Air Shed Emissions	Frequency Spectrum	Seaspace	Surface Land	Water Supply	Water Discharge
Compatible Volume	Stationary Source Inventory	Tactical and Non-Tactical Bandwidths	Time Access Available	Current Off Base Compatible Acres	System Capacity vs. Usage	Wastewater System Capacity vs. Discharge Volume
Time/Volume Denied	Restricted Stationary Emissions		Time Opportunity by Mission Type	Projected Off Base Compatible Acres	Constrained Month System Capacity vs. Usage	
Hours	Total Mobile Source Emissions	Regional Congestion	Area Denied for Specific Exercises	Undeveloped Acres	Unconstrained Months	Overflow Frequency
Distance			Time/Area Denied for Specific Exercises	Developable Acres	Months Restricted	Water Quality Discharge
Minimum Size Dimension	Attainment Classification				Surface Land/ Time Area Denied	
						Current Aquifer Capacity vs. Sustainability

Integrity - Service - Excellence

Corp metrics. Business unit metrics. Site metrics. Workgroup metrics.
Corporate ones need to roll up (% implementation of SMS elements)

Metrics need to be balanced



Need to have a careful balance of both lagging and proactive oriented metrics.

- Why lagging metrics?

- “Industry” benchmarks
- “Rear-view” mirror
- Examples:
 - OII performance

- Why proactive metrics?

- The can address “pain” points
- They can help identify weaknesses in program
 - % of employees trained vs. performance
 - % of samples taken above action level or PEL

CORPORATE-WIDE LEADING INDICATOR

“% Implementation of the Global SMS Elements”

I. Leading Indicators

“Leading indicators are the performance drivers that communicate how outcome measures are to be achieved.”

Robert S. Kaplan and
David P. Norton,
The Balanced Scorecard



The BOTTOM LINE in safety can't be the only metric. That's history. It's dysfunctional. Works if combined with leading measures of System.

The Bottom Line

“An organization will achieve the level of S.H.&E. performance that the leadership **demonstrates*** it expects.”

***Definition is same as PDCA: Say it, Do it, Check it, Improve it** (Saying it is only one of four steps. Doing only one, such as say only, is dysfunctional). Kyle Dotson

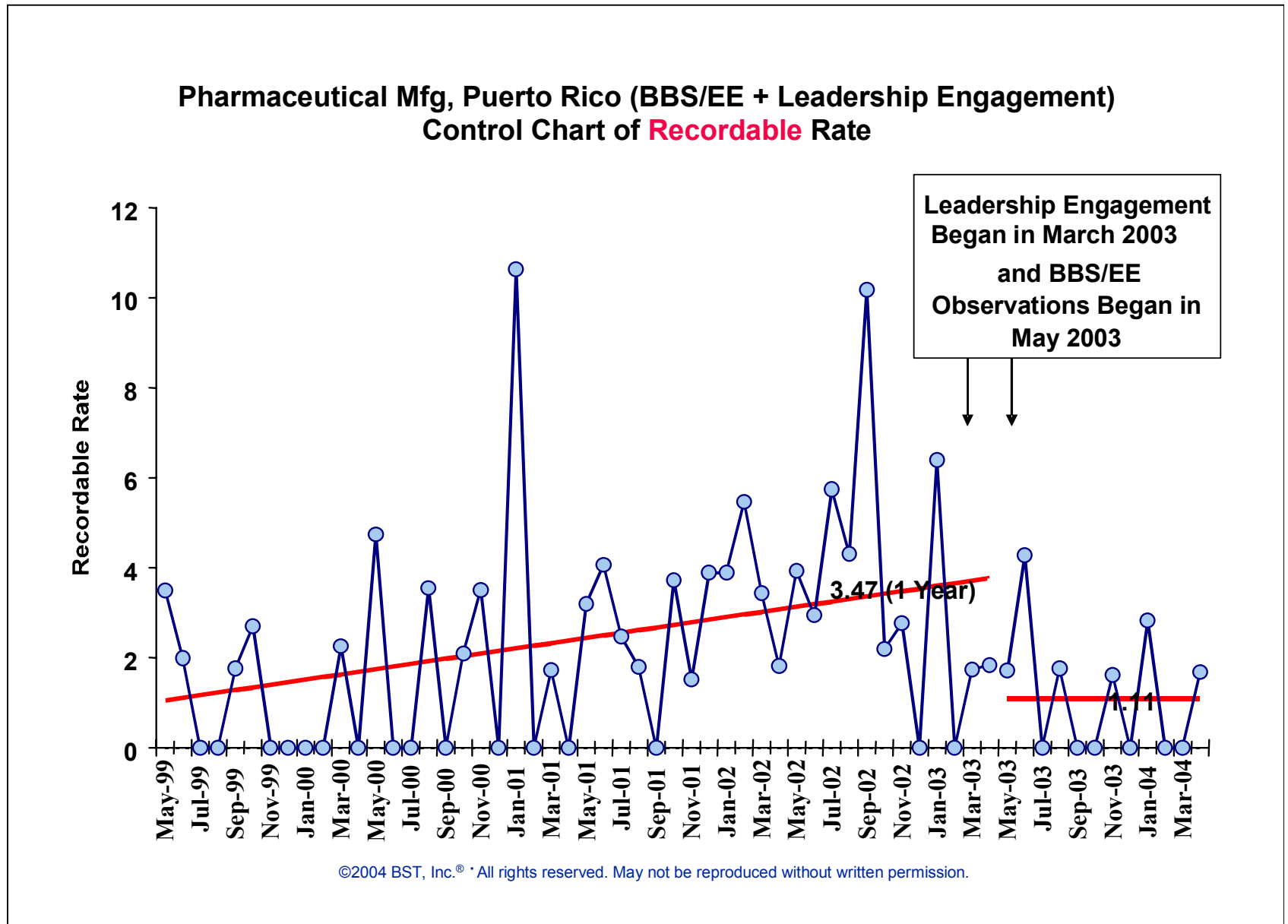
The Goal is Zero

Humans don't measure as well or respond to Six Sigma like machines do. They have opinions. 4 sigma Behavior. Culture. The "soft" side of Safety.

Partial Correlations with Safety Climate

Variable	Partial Correlation
Safety Policies & Programs	.395
Communication	.236
Organizational Support	.148
Environmental Conditions	-.127
Coworker Support	.088
Hours Worked/Wk	.035
Participation-Supervisor	.034
Participation-Others	-.014
Age	.011
Gender	-.010
Tenure	-.004

So with humans, be careful what you measure. You might get it.



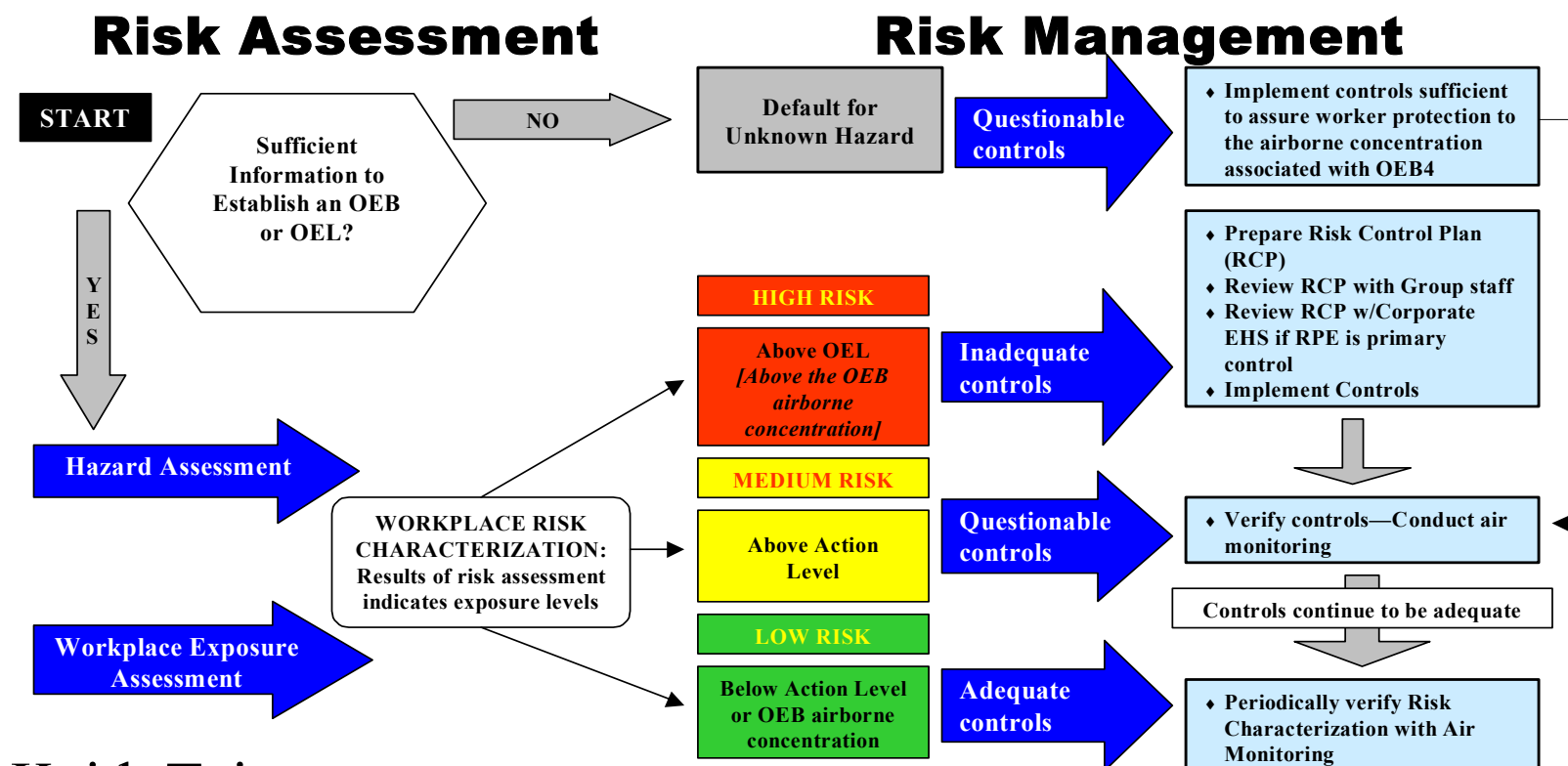
Agreement on “definitions” has given us ability to have IH systems

Hazard groups A-E (chemicals causing harm when breathed in)				
A	B	C	D	E
R36 R36/38 R38	R20 R20/21 R20/21/22 R20/22	R23 R23/24 R23/24/25 R23/25	R26 R26/27 R26/27/28 R26/28	Muta cat 3 R40
And all substances that don't have R-phrases in groups B-E	R21 R21/22	R24 R24/25	R27 R27/28	R42 R42/43
	R22	R25	R28	R45
		R34	Carc cat 3 R40	R46
		R35	R48/23	R49
		R36/37 R36/37/38	R48/23/24 R48/23/24/25 R48/23/25	
		R37 R37/38	R48/24 R48/24/25	
		R41	R48/25	
		R43	R60	
		R48/20 R48/20/21 R48/20/21/22 R48/20/22 R48/21 R48/21/22 R48/22	R61 R62 R63	
Least hazardous substances		more hazardous substances		Special cases

Keith Tait

And IH Systems yield Metrics.....

Pfizer Workplace Risk Assessment Strategy



Keith Tait

Even without Control Banding, Other IH Metrics Abound.
Pick a few.

Reduction of Respirator Usage

Control Strategy	Design	Procedure	Training
Treat/Minimize	4	7	9
Prevent	2	5	8
Eliminate	1	3	6
Control Category			

Control Effectiveness (Category X Strategy)

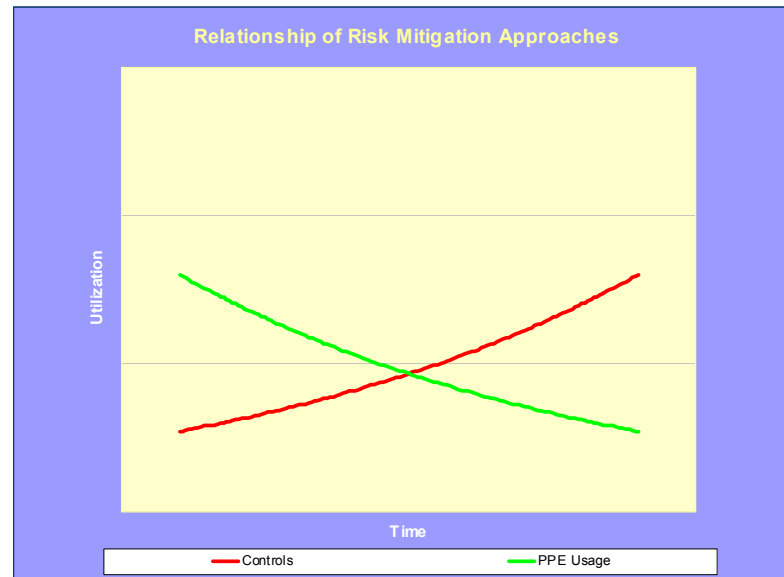
Control Category

Procedure

Control Strategy

Treat/Minimize

7.0



Metrics from Systems in large orgs greatly benefited by IT tools.



Global Information Technology

Facilitate Tracking System performance

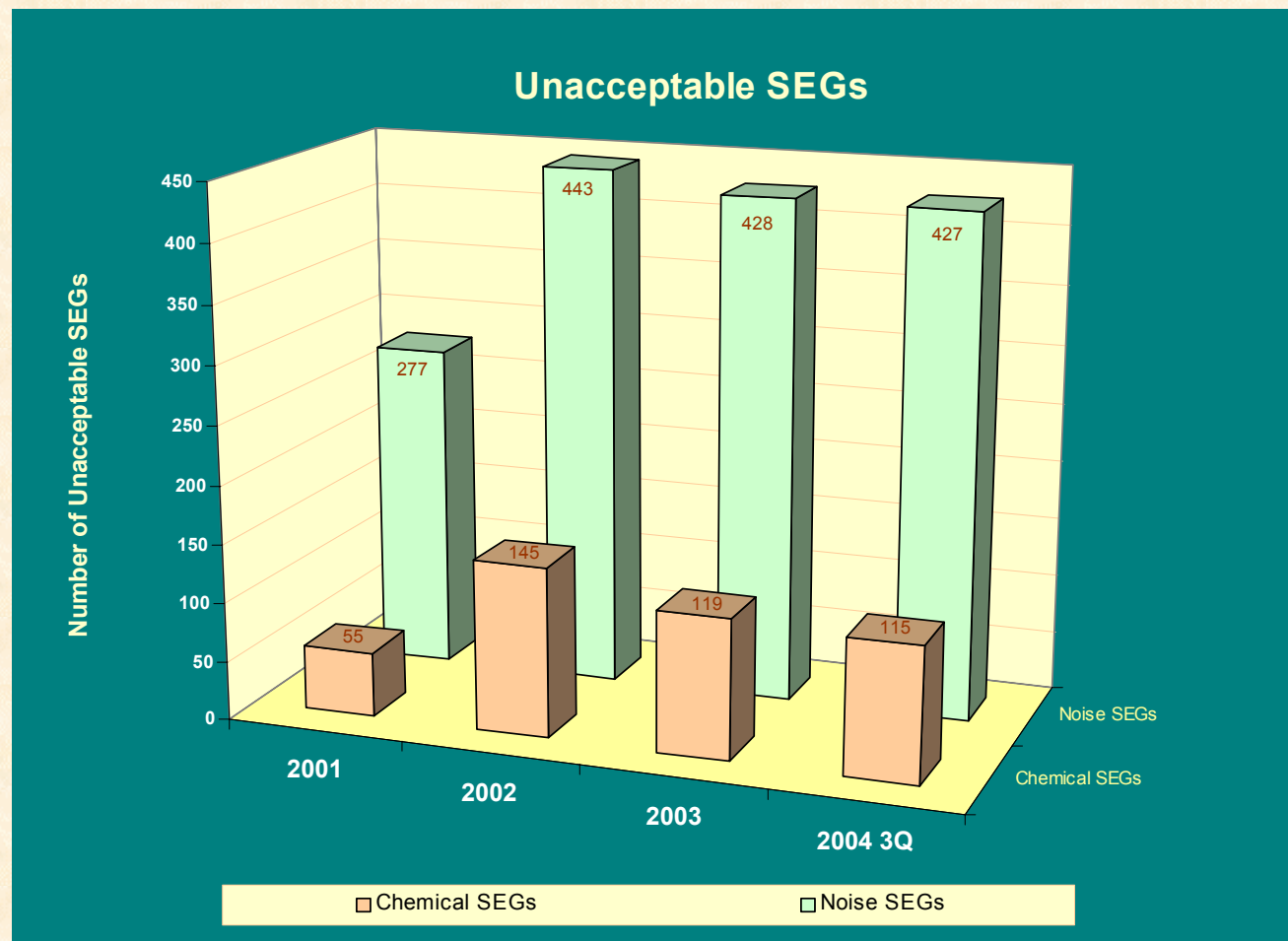
Aldo Morell



The miracles of science™

IH Metrics Abound. Because IH has been data focused.

Exposure Assessment



Conclusion

Turn your

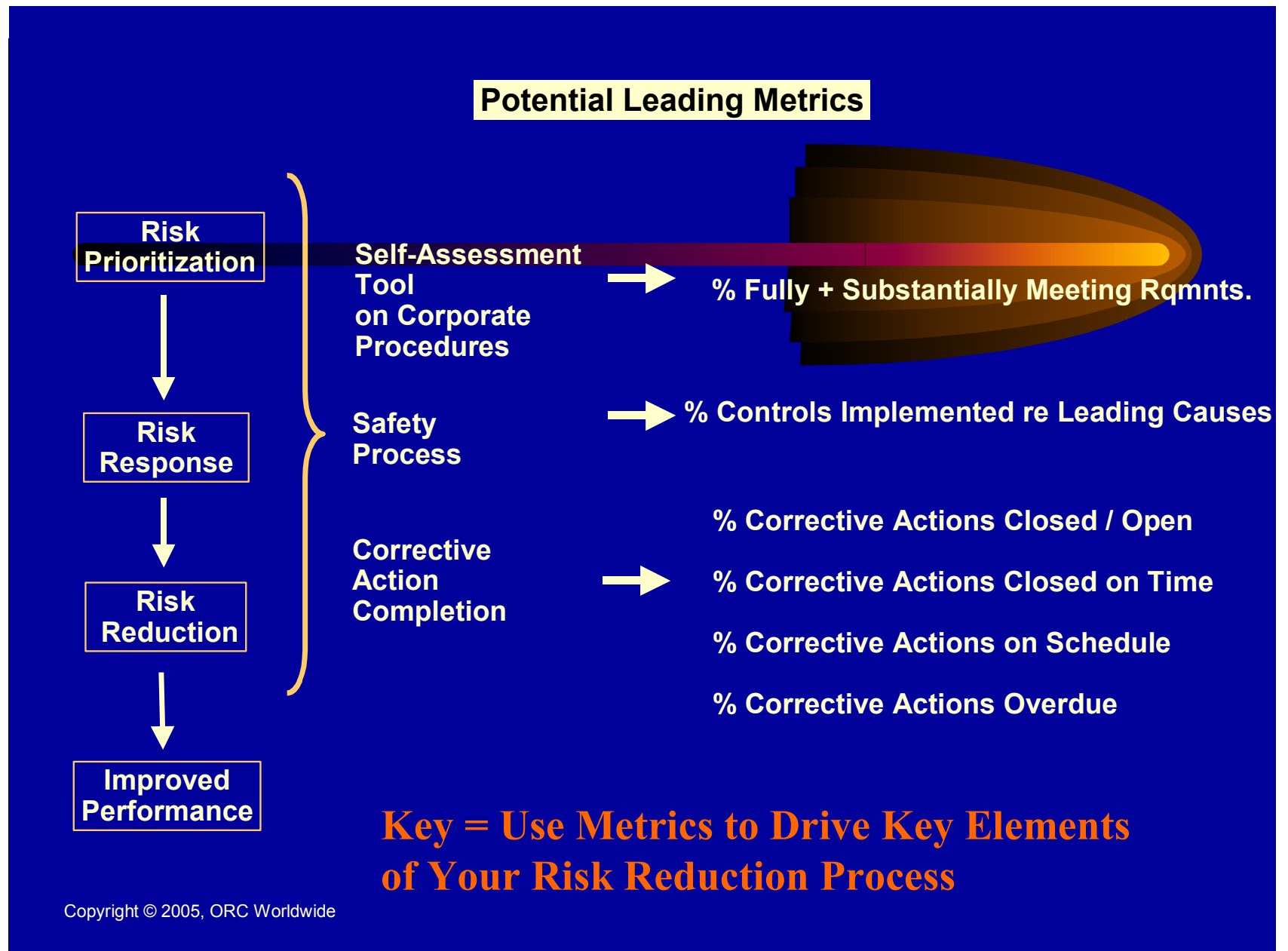
data

into

information!

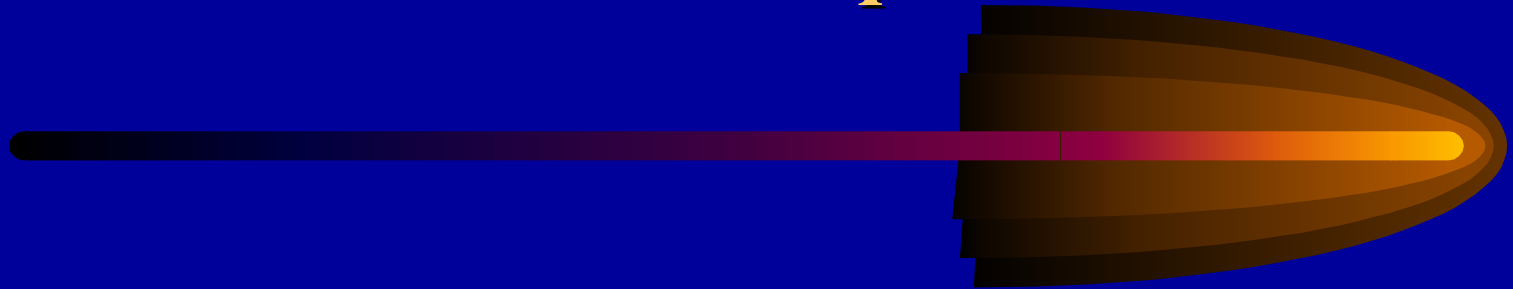


Just because you have data, doesn't mean it's a metric. Don't just measure what is simple to measure. Measure what matters.



Compared with the past, its now pretty easy being green.

The Current Landscape



“In Times Like These, It Is Helpful
To Remember That There Have
Always Been Times Like These.”

Paul Harvey

Metrics that get put to senior managers these days get addressed.
Because, if nothing else, the lawyers make them.

Metrics & continuous improvement



- Feedback and evaluation need to be part of an overall process:
 - Regular review & check-in
 - Alignment with key business dates (i.e., budgets)
 - Strong communication vehicle (intra & inter company)
 - Feedback process
 - Verification
 - Accountability

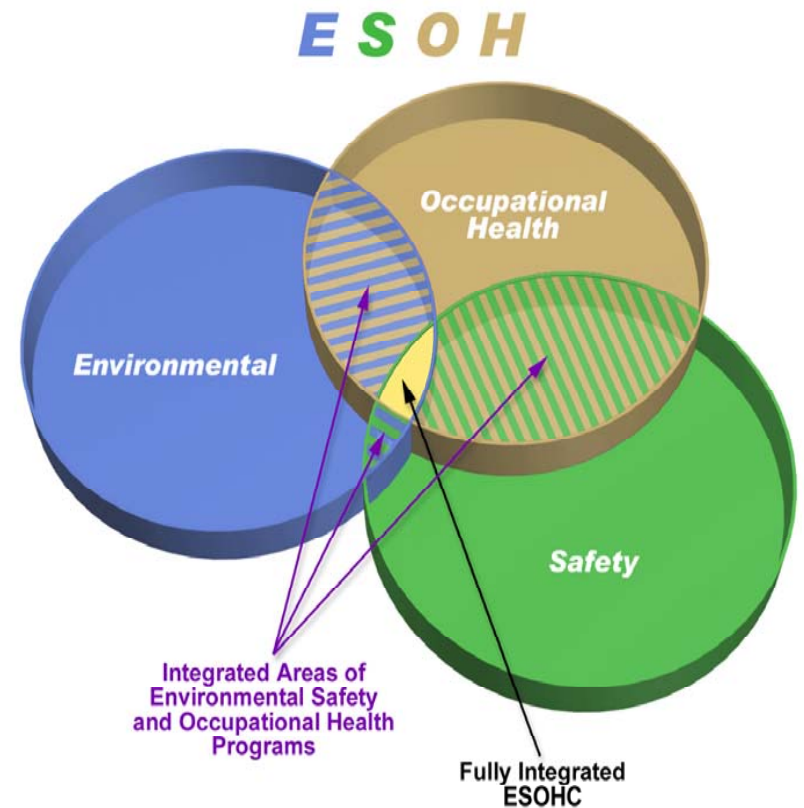
The IH profession is in an excellent position to lead. If you will.



U.S. AIR FORCE

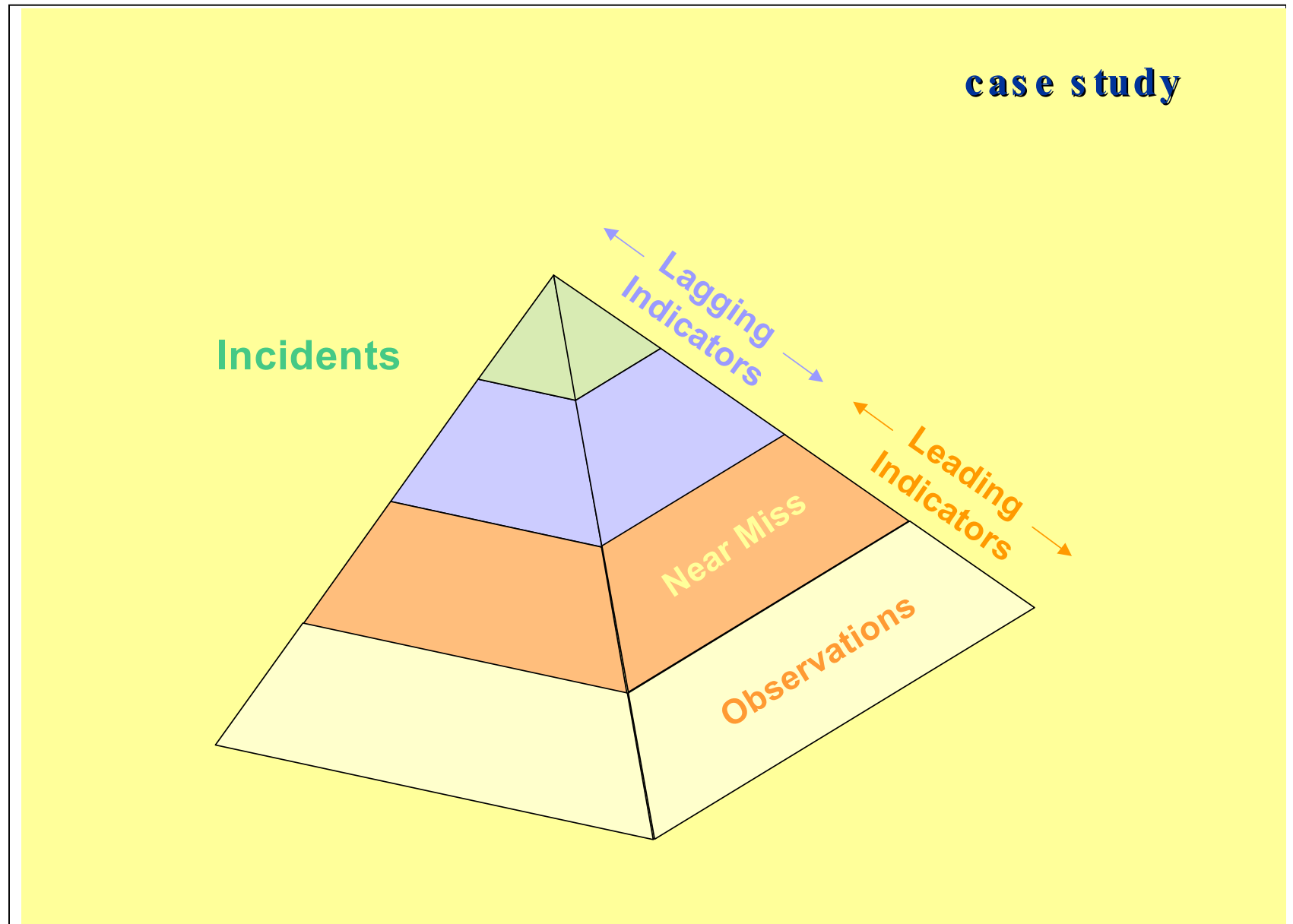
ESOH Vision

- **Air Force Vision is an Operationally Focused Integrated ESOHMS**

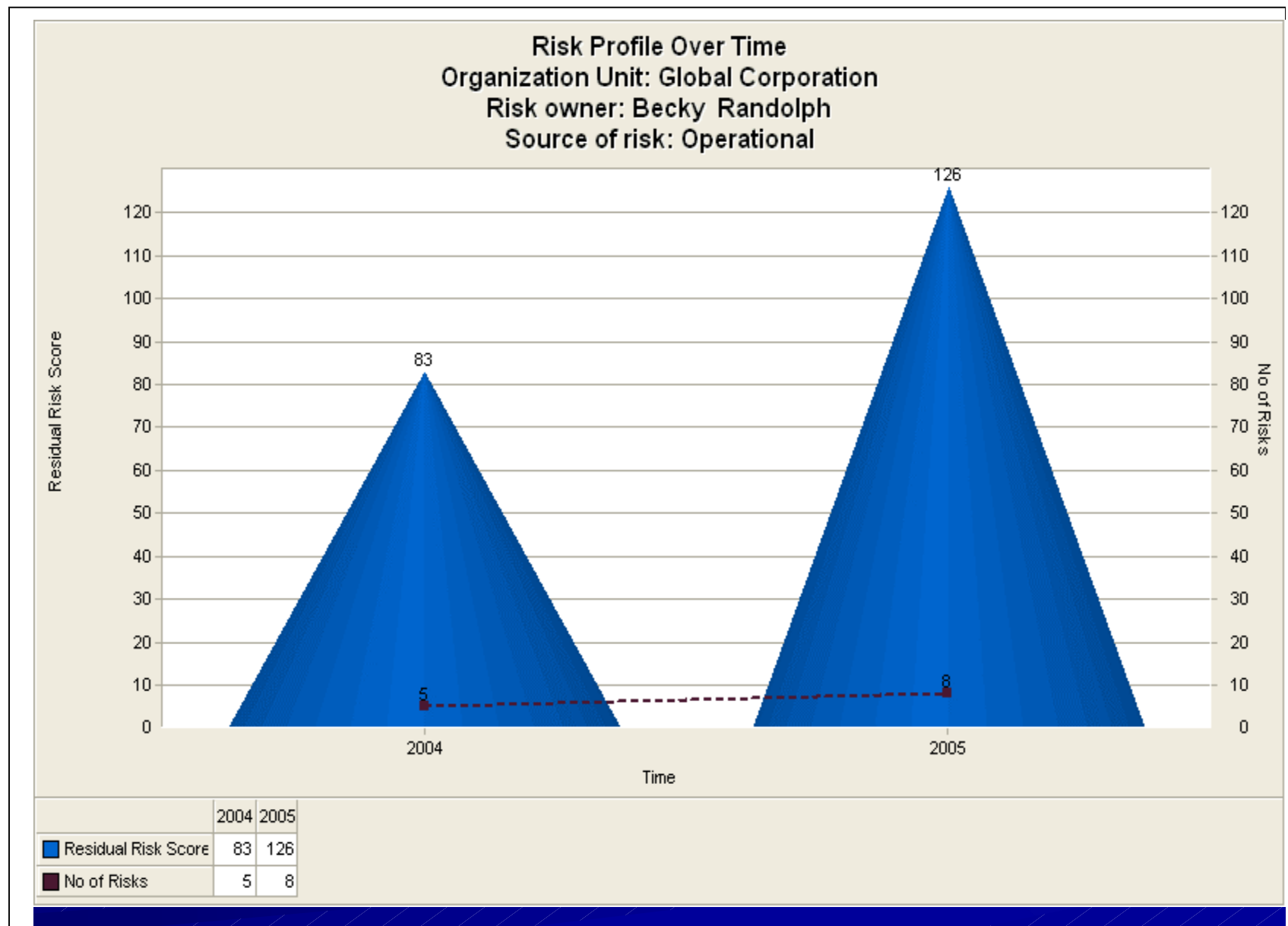


Integrity - Service - Excellence

Leading and Lagging indicators. Measuring them gets lots of people involved.



Its all about RISK. Lowering the RISK profile of your company.
That's a message that senior managers are now listening to.



Make it simple. Have simple tools. Hide the complexity.

case study

Risk Matrix Summary (Residual)

Risk Owner: **

Organizational Unit: Global Corporation

Source of Risk: All

Likelihood

0	0	0	0	0
1	0	1	0	0
0	0	3	1	2
0	0	0	1	0
0	0	0	0	0

Consequence

Priority

	First
	Second
	No Action

Risk Priority	Org Unit	Source	Risk Title(Risk ID)	Residual Assessment	Last Review
First	Global Corporation	Operational	Product Supply Disruption(RSK-3)	High - 22	
First	Global Corporation	Operational	Product Contamination(RSK-7)	High - 22	

We are no longer primordial ooze. If UC can do it, you can too.

Campus Hierarchy

- Faculty— Mythological gods
- Students— Unformed lumps of clay
- Staff— Unidentified primordial ooze...



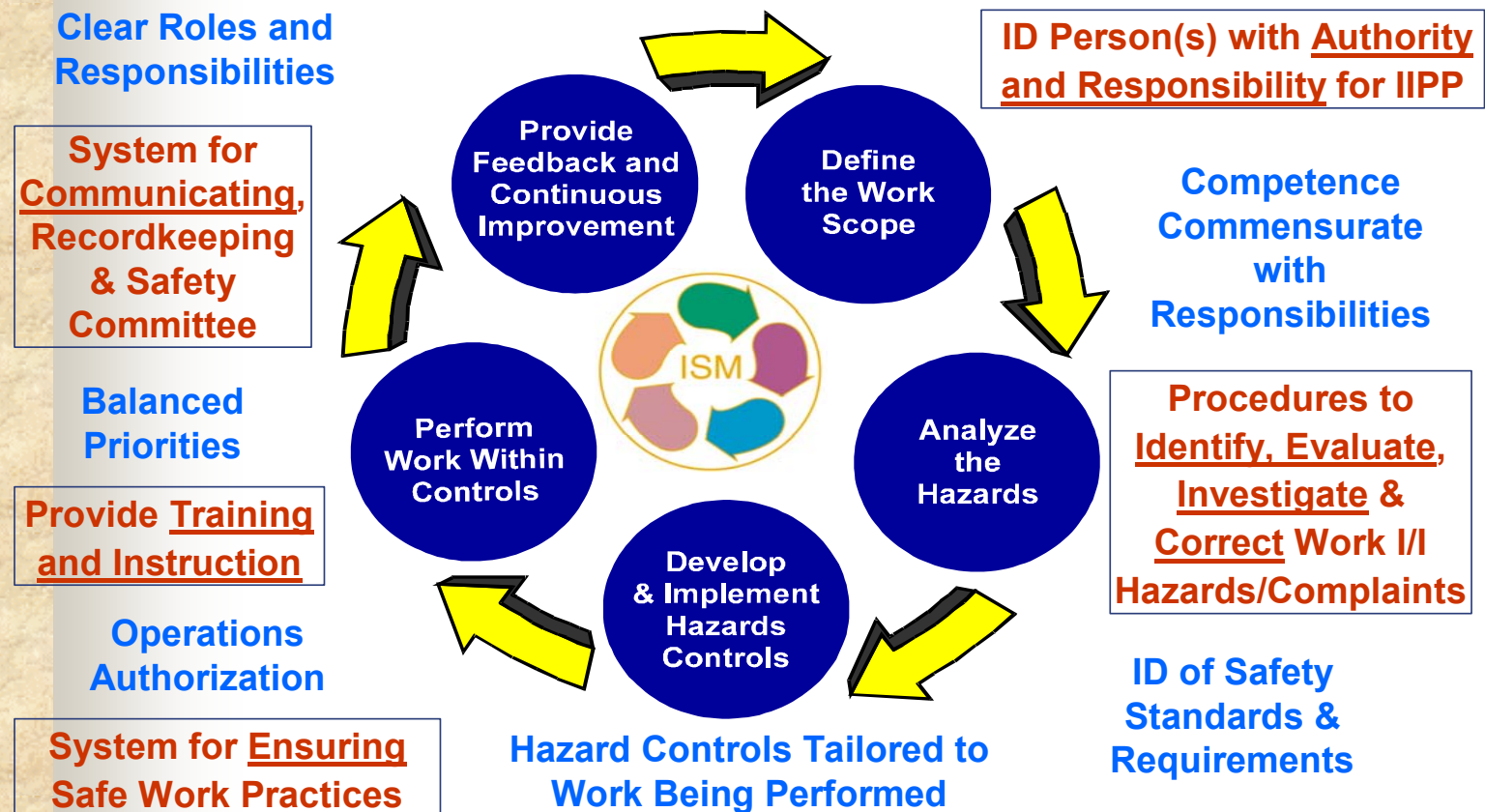
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Management systems that are designed by professionals, driven by business manager metrics, and implemented daily by employees, work.

Crosswalk: ISEM and Cal-OSHA IIPP

Line Management Responsibility for Safety



Communication always an issue. More than ever. Remember when we only had to worry about communicating with management?



More and more, E and therefore HS is becoming a Corporate Social Responsibility issue.

SMS Social Example

O bjective	G oal	S trategy	M easure
Reduce Community Complaints	Reduce Community Complaints caused by odor and noise by 80% in 2004	1. Investigate causative factors for odor and noise complaints 2. Install abatement technology	Number of complaints per year Reduction in dB at pre-determined fence-line locations

**What has not changed from Larry Birkner's 2002 presentation,
and should NEVER change for us..**



**The safe and healthy worker in
a profitable company is an
attainable objective**

Earl
Dotter

Because, its about Ethics. Integrity. Its the right thing to do.
..... Oh, its also about RISK. To your CEO. So fix it..... Now.....

How does this relate to EHS?

- Don't lose sight of the prize - improving EHS performance.
- Make the business case for EHS, but do it to enable your management to make the ethical choices they want to make anyway.
- Don't dissociate EHS from ethical values.
- If you can't identify your company's ethical values, and how they relate to EHS, find another place to work.



In summary of this summary, what you can tell your management that you learned this weekend that your company should do ...

Programs vs. System

